Aug. 20, 1935. A. F. LEPPLA 2,011,816

CAR HATCH STRUCTURE

Filed Nov. 14, 1932 2 Sheets-Sheet 1

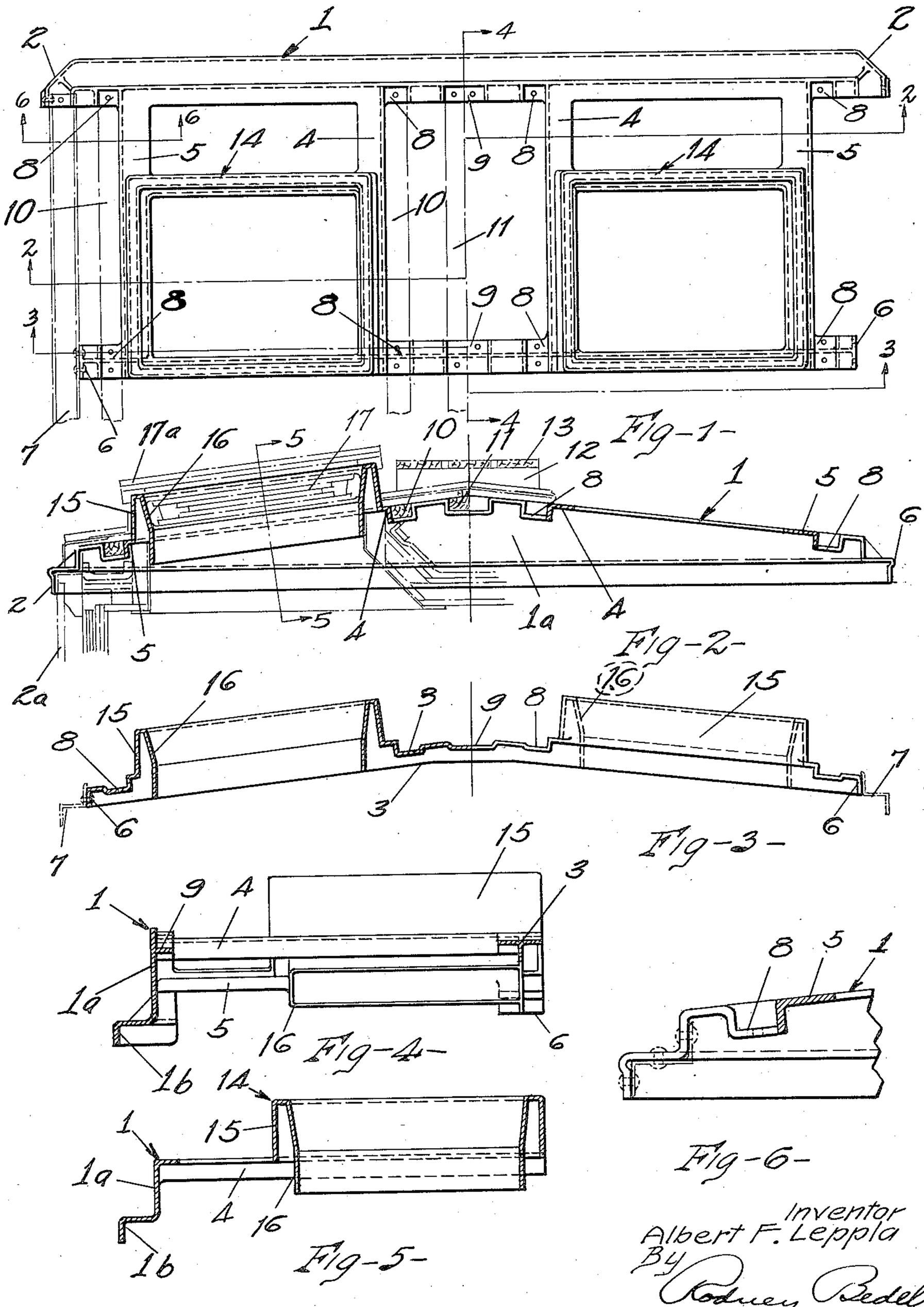

Fig-1-

Fig-2-

Fig-3-

Fig-4-

Fig-5-

Fig-6-

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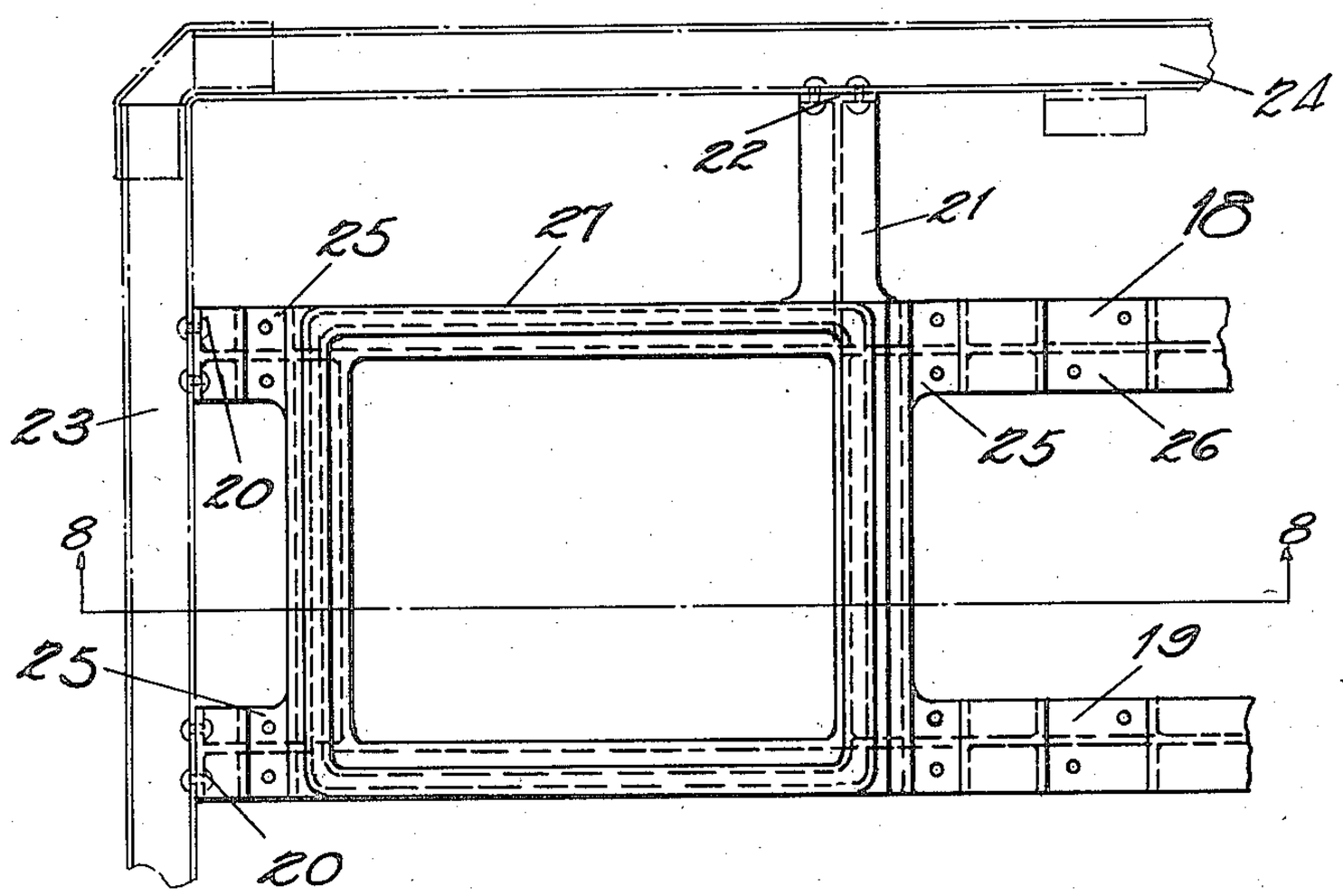

Fig-7-

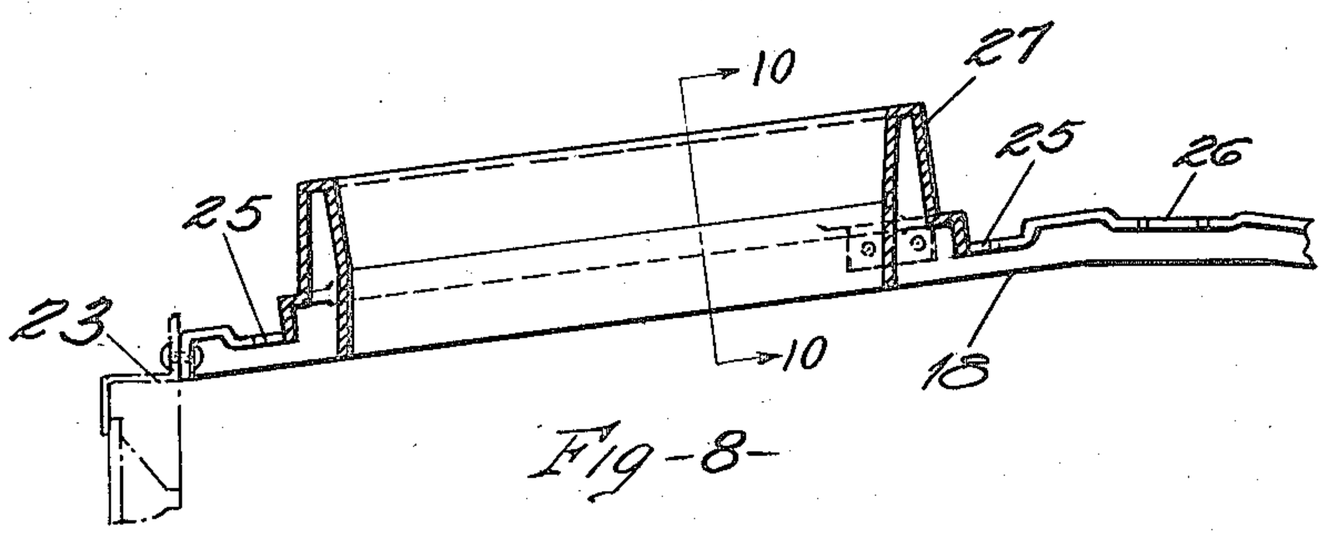

Fig-8-

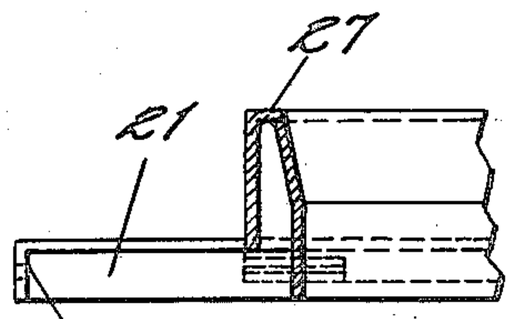

Fig-10-

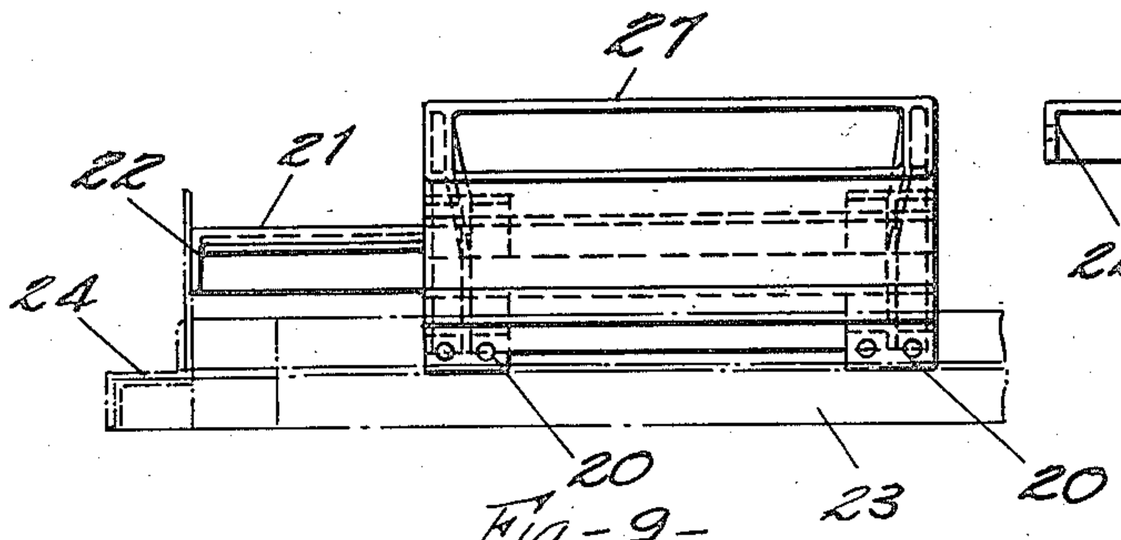

Fig-9-

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CAR HATCH STRUCTURE

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Application November 14, 1932, Serial No. 642,509

8 Claims. (Cl. 108—5.7)

This invention relates to railway car construction and consists particularly in a novel hatch and carline structure for refrigerator car roofs.

According to the usual practice at present, refrigerator car roofs are built up of a number of separately formed carline and purline members secured to each other and to side and end framing of the car and the icing hatchways are formed by assembled frames resting upon and secured to these members. The cutting, fitting, and assembling of the various parts of the hatch and adjacent roof framing is complicated and tedious, and in the finished structure the numerous joints weaken the roof. Eventually, due to strains and shocks caused during loading of ice through the hatches and due to constant vibration of the vehicle during traveling, these joints become loose and open and the hatches must be repaired or replaced.

The main object of the present invention is to provide means for strengthening the hatchway and adjacent part of the roof of a refrigerator car.

Another object is to provide a rigid one-piece structure extending from side to side of the car and including a hatchway frame, all joints and crevices being eliminated.

These objects and others are attained substantially by the structures illustrated in the accompanying drawings, in which—

Figure 1 is a top view of a casting illustrating one form of the invention.

Figure 2 is a vertical transverse section taken on the line 2—2 of Figure 1.

Figure 3 is in part an end elevation and in part a vertical section taken on the line 3—3 of Figure 1.

Figure 4 is a vertical longitudinal section taken on the line 4—4 of Figure 1.

Figure 5 is a section taken on the inclined line 5—5 of Figure 2.

Figure 6 is a detail transverse vertical section taken on the line 6—6 of Figure 1.

Figure 7 is a partial plan view of another form of the invention.

Figure 8 is a transverse vertical section taken on the line 8—8 of Figure 7.

Figure 9 is a side view of the modified casting.

Figure 10 is a sectional view taken on the inclined line 10—10 of Figure 8.

In Figures 1 to 6 is illustrated an integral structure forming a portion of the roof framing for a refrigerator car and including an end plate 1 of substantially W-section, having a main vertical web 1*a* in the shape of a broad base triangle, an angle 1*b* at the bottom for attachment of end framing, and pockets 2 for receiving corner posts 2*a*. Spaced longitudinally of the end plate is a carline 3, in part of T-section as in Figure 4, and this is connected with the end plate by longitudinal members 4 and 5 in part of L-section as in Figure 2. The tops of the end plate and carline are inclined downwardly and outwardly from the center for mounting pitched roofing.

Recesses 8 and 9 are provided in the end plate and carline for attachment of separately formed purlines 10 and the ridge pole 11. The carline 3 is provided at its ends with angles 6 forming brackets for attachment to side plates 7. Running board 13 is mounted above the ridge pole upon separate brackets 12.

Portions of the carline 3 and longitudinal members 4 and 5 on each side of the center of the casting form parts of the hatchway frames for permitting access through the roof to the ice bunkers on the inside of the car. These parts are of substantially inverted U-shape or doubled-over construction including outer legs 15 and inclined inner legs 16 which are deeper than legs 15 and receive the insulated hatch plug 17 and the hatch cover 17*a*. The fourth wall 14 of each frame extends between points on longitudinal members 4 and 5 spaced from carline 3 and the end plate and is shaped similarly to the hatchway forming parts of the carline and longitudinal members 4 and 5.

In Figures 7 to 10, the hatch framing is shown formed integral with a pair of carlines 18 and 19, having side plate brackets 20 at the ends, and longitudinal members 21, only one being shown, which have end plate brackets 22. The side plate 23 and end plate 24 are separately formed. Only approximately half of the casting is shown in the figures but the casting is preferably symmetrical with the carlines extending entirely across the car. The longitudinal members 21 and the carlines 18 and 19 are in part of T-section. Depressions 25 and 26 are provided in the carlines for receiving, respectively, separately formed purlines and the ridge pole (not shown). The shaping of the portions of carlines 18 and 19 and longitudinal members 21 forming the hatch framing, indicated by the numeral 27, is the same as in the previous form.

In each of the forms the casting may be provided with only one hatchway frame instead of two. Also other carlines or longitudinal members or the side plates may be readily formed integral with various other parts illustrated. The casting is rigid throughout and is supported from

both sides of the car as well as from the adjacent end plate. The integral formation eliminates a large number of joints and crevices in the structure and enables the shaping of the various parts and disposition of metal to be effected in a manner to most advantageously withstand various forces to which the structure is subjected with the use of a minimum of metal. The elimination of attaching flanges as well as connecting bolts or rivets necessary in built-up structures also contributes to the strength of the casting and decreases the weight thereof.

The exact shaping shown of the hatchway walls and transverse and longitudinal roof members is not essential and this may be modified in various respects. These and other variations may be made in the structures illustrated without departing from the spirit of the invention and the exclusive use of all such modifications as come within the scope of the appended claims is contemplated.

What is claimed is:

1. A railway vehicle one-piece cast roof structure including a pair of carlines, side plate brackets at the ends thereof, longitudinal members intersecting said carlines, and end plate brackets on said members, said carlines and longitudinal members forming sides of spaced hatchway frames and having surfaces for engaging hatch closure members.

2. A railway vehicle one-piece cast roof structure including an end plate having corner post brackets, a carline having side plate brackets, and longitudinal members connecting said end plate and carline, said carline and longitudinal members forming sides of hatchway frames and having surfaces for engaging the hatch closure members.

3. A one-piece cast metal structure for a refrigerator car roof comprising spaced carline members arranged to extend transversely of the roof and spaced longitudinal members connecting said carline members, said members including integral elements forming a hatchway frame with a plurality of faces for engaging a hatchway plug and a cover for the same.

4. A one-piece cast metal structure for a refrigerator car roof comprising an end plate, a carline member, longitudinal members connecting said end plate and carline member, and a member intermediate said end plate and carline member and connecting said longitudinal members, each of said members including a part of inverted U-section and all of said parts being merged in an integral unit to form a hatchway frame with a continuous hatchway closure engaging surface.

5. A rigid one-piece structure for a car roof comprising a member arranged to extend transversely of the roof and to be attached at its ends to car side plates, and a member formed integral with and intersecting said transverse member and arranged to extend longitudinally of the roof, portions of said members extending above the normal roof level and being of inverted U-shape with the inner legs thereof forming hatchway inner walls.

6. A rigid one-piece structure for a car roof comprising carline and longitudinal members including integral elements for attaching the same to car side and end framing, said members having integral portions forming the sides of a hatchway frame, said portions being of inverted U-section constructed and arranged to set a hatchway plug and its cover.

7. In a car roof, side plates, and a unitary structure comprising a carline member connecting said side plates, longitudinal members intersecting said carline member, and another transverse member spaced from said carline member and connecting said longitudinal members, all of said members being formed integral with each other and having parts extending above the normal roof level for mounting a hatch closure.

8. A rigid one-piece structure for a car roof comprising a pair of spaced members arranged to extend transversely of the roof, a pair of spaced members arranged to extend longitudinally of the roof and intersecting said transverse members, said members being formed integrally with each other and including a substantially continuous portion constituting a hatchway rectangular frame, and elements integral with said hatchway frame for securing the structure to the car framing.

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